

STUDIES OF AMERICAN PLANTS -- XX

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HAMAMELIDACEAE

MATUDAEA TRINERVIA Lundell, *Lloydia* 3: 209--210. 1940;
Wrightia 6: 59. 1979.

El Salvador: Dept. Santa Ana, Montecristo, primary cloud forest, elev. 2000 m., Feb. 2, 1978, R. Martínez (M. L. Reyna 1141, LL), tree with bright pink flowers, "ujushte"; Montecristo, primary cloud forest, elev. 1950 m., Oct. 24, 1979, Reyna 1217 (LL), tree with red flowers, "ujushte".

These are the first records for the genus in El Salvador. It ranges south from Mexico into Guatemala, Honduras and Nicaragua.

The genus Matudaea Lundell, with two species M. trinervia and M. hirsuta Lundell, described from Mexico, and a fossil species, M. Menzeli Walther, found in the Middle Oligocene of Central Europe, are treated in a recent publication by H. Walther (*Flora* 170: 198--516. 1980).

CELASTRACEAE

EUONYMUS HABERI Lundell, sp. nov. -- Arbor, omnino glabra; folia parva, glabra, petiolata, petiolo ad 7 mm. longo, canaliculato; lamina subchartacea, elliptica vel rotundata, 3--6 cm. longa, 2--3 cm. lata, apice acuta, basi rotundata, integra, subtus paullo pallidior, nervis inconspicuis; flores 4-meri, cymosi, cymis axillaribus, ad 1.5 cm. longis, breviter vel longiuscule pedunculatis, 4--7-floris, pedicellis gracilibus usque ad 4 mm. longis; calyx ca. 2 mm. latus, lobis late ovatis, ad 1.2 mm. latis; petala rotundata, ad 4 mm. longa, 3 mm. lata, basi coalita, apice cucullata; stamina ca. 4 mm. longa; antherae ellipticae, apice emarginatae; ovarium glabrum.

Costa Rica: Prov. Puntarenas, Monteverde, lower community, elev. 1300 m., April 16, 1979, W. Haber 313 (LL, holotype), medium tree.

The small elliptic or rarely orbicular leaves rounded at base and with margin entire set the species apart from E. costaricensis Standl. The latter has much larger crenate-serrulate leaves, as well as petals described as only 2 mm. long.

E. Rothschuhii Loes., described from Nicaragua, is unknown to me.

QUETZALIA OCCIDENTALIS (Loes.) Lundell, *Wrightia* 4: 138.

1970. Microtropis occidentalis Loes., *Bot. Gaz.* 24: 393. 1897.

Panama: Prov. Panama, Cerro Jefe, cloud forest, premontane Rain Forest, elev. ca. 1000 m., June 11, 1975, S. Mori 6533 (LL), small tree, 4 m. tall, fruit brown, splits longitudinally into two halves.

The collection is the first I have seen from Panama. The species has been collected at various places in the mountains of Costa Rica, and this extension of its range was to be expected.

QUETZALIA REYNAE Lundell, sp. nov. -- Arbor, ramulis glabris, angulatis, crassiusculis; folia opposita, glabra, petiolata, petiolo 7--11 mm. longo, canaliculato; lamina chartacea vel subcoriacea, glabra, elliptica vel anguste elliptica, 5.5--10 cm. longa, 2.8--5 cm. lata, apice obtusa vel obtusiuscula, basi acuta; cymae 2--2.5 cm. longae, glabrae; pedunculi ad 1 cm. longi, 1--3-dichotomi; capsula anguste ellipsoidea, ad 2 cm. longa, acuta.

El Salvador: Dept. Santa Ana, Metapan, Montecristo National Park, in primary cloud forest, elev. 2000 m., Nov. 1, 1977, S. Martinez (M. L. Reyna 1114, LL, holotype), tree, "pata de palomo"; Montecristo, primary cloud forest, elev. 2200 m., Oct. 25, 1979, Reyna 1219 (LL), tree, "pata de palomo".

Q. Reynae is related to A. occidentalis (Loes.) Lundell and Q. ilicina (Standl. & Steyerl.) Lundell, differing from both in having much larger acute capsules up to 2 cm. long (immature). Its leaves, similar to those of Q. occidentalis, are obtuse rather than acute or subacuminate. Only flower buds are available and they are depressed-globose.

ZINOWIEWIA CUNEIFOLIA Lundell, sp. nov. -- Arbor, omnino glabra; folia opposita, parva, petiolata, petiolo 3--7 mm. longo, canaliculato; lamina subcoriacea vel chartacea, anguste elliptica vel lanceolata, 3--7.5 cm. longa, 1--3 cm. lata, revoluta, basi aequalia, anguste cuneata, apice obtusa, raro acuminata; cymae multiflorae, 3--5-dichotomae, ad 4 cm. longae; flores pedicellati, pedicelli 1--4 mm. longi; calyx quinquelobatus, lobis ovatis, obtusis, ca. 0.5 mm. longis, crassis; petala ovato-elliptica, 1.5--2 mm. longa, apice rotundata; stamina ca. 0.7 mm. longa; ovarium biloculare; fructus alatus.

El Salvador: Dept. Santa Ana, northern slopes of Santa Ana Volcana, 6000--7000 ft., Sept. 25, 1958, Paul H. Allen 6944 (LL, holotype), tree to about 80 ft., but often flowering when much smaller, flowers green, fruits with whitish wing, common throughout area, "culebro" or "naranjillo". Dept. Santa Ana, Parque del Hotel Co. Verde, elev. 1900 m., Sept. 1,

1976, E. A. Montalvo 4842 (MO, paratype; LL, fragment & xerox copy), arbol de pequenas flores blancas perfumadar, frutas aladas.

Two other collections from the Department of Santa Ana, Reyna 1222 (LL), 1226 (LL), at Los Planes, near Montecristo in primary evergreen forest, are referable to Z. cuneifolia. In Reyna 1222, in flower, the pedicels are much shorter, the cymes are not as large, and the leaves are mostly acuminate. Reyna 1226 has mature fruits up to 1.7 cm. long with obovate rounded wing up to 6 mm. wide.

The revolute leaf margin of the small grayish subcoriaceous cuneate leaves, together with the obovate wing of the mature fruits are features of Z. cuneifolia to be noted.

Z. inaequifolia L. Wms., from Nicaragua, has leaves bilaterally unequal, much smaller cymes, and petals only 1--1.2 mm. long, as described by Williams. More collections of the Central American species are needed to work out relationships.

ZINOWIEWIA MICRANTHA Lundell, sp. nov. -- Arbor, ca. 5 m. alta, omnino glabra; folia opposita, aequalia, petiolata, petiolo 4--5 mm. longo, canaliculato; lamina subcoriacea, oblongo-elliptica vel ovata, 4.5--8 cm. longa, 2--3.5 cm. lata, apice acuta vel subacuminata, basi rotundata et acutiuscula, subtus pallida; cymae multiflorae, ad 3 cm. longae, 3--5-dichotomae, pedunculatae; pedicelli 1--2.5 mm. longi; flores 5-meri; calyx quinquelobatus, ca. 1.4 mm. diam.; petala oblongo-ovata, 1.2--1.4 mm. longa, apice rotundata; stamina ca. 0.5 mm. longa, recurvata; fructus alatus.

Panama: Chiriqui, Boquete Region, Cerro Horqueta, in cloud forest, 6500 ft., June 24, 1940, Christine and Wolfgang von Hagen 2130 (LL, holotype), tree, 15 ft. high, 6 in. trunk.

The minute flowers with calyx less than 1.5 mm. in diam. with the small lobes less than 0.5 mm. long, together with oblong-ovate petals up to 1.4 mm. long, probably are the smallest in the genus -- about the size of a pin head. The brownish subcoriaceous leaves are much paler beneath and have venation considerably coarser than that of Z. costaricensis Lundell and Z. australis Lundell, taxa of Panama and Venezuela. Known only from flowers and very immature samaras, the relationship of the species is doubtful.

TILIACEAE

MORTONIODENDRON PALACIOSII Miranda, Anal. Inst. Biol. Mex. 27: 323, fig. 1. 1957.

Guatemala: Dept. Peten, Lacandon, in bajo ca. 1.5 km. south, March 6, 1962, Elias Contreras 3474 (LL), tree, 6 in. diam., 40 ft. high.

El Salvador: Dept. Santa Ana, Metapan, near Montecristo, transitional vegetation between cloud forest and oak forest, elev. 2200 m., May 10, 1979, M. L. Reyna & R. Martinez 1202

(LL), tree about 15 m. tall with dark brown, rough bark, flowers apetalous with yellow sepals; Metapan, La Montanita, Parque Nac. Montecristo, dentro de Ecotono, cerca de bosque nebuloso, elev. 2200 m., Mar. 12, 1980, Reyna 1268 (LL), árbol de aprox. 15 m., con tronco levemente rugoso, semillas color café cubiertas de arilo carnosa rojo o anaranjado, "nispero", "nispero de montana".

Described by Miranda from Chiapas, these collections from Guatemala and El Salvador are the first records for Central America.

The species is unique in the genus in being apetalous and in having 1-seeded capsules.

MYRSINACEAE

ARDISIA ATROPURPUREA Lundell, sp. nov. -- Frutex; ramuli graciles, lepidoto-furfuracei; folia parva, supra et subtus lepidota, petiolata, petiolo 3--4 mm. longo; lamina membranacea, anguste elliptica, 4--7 cm. longa, 1.5--2.3 cm. lata, apice acuminata, acumine obtusiusculo, basi acuta; inflorescentia terminalis, tenuis, paniculata, pauciflora, ad 7 cm. longa et lata, lepidota; pedicelli graciles, 6--12 mm. longi; flores hermaphroditi, corymbosi; sepala 5, lepidoto-furfuracea, nigropunctata, ovato-elliptica, 1.5--1.8 mm. longa, eroso-ciliata, asymmetrica; petala 5, elliptica, ca. 3 mm. longa, basi coalita, atropurpurea, patentissima, extus lepidota, intus glabra, punctata, apice rotundata; stamina 5, ca 2 mm. longa; antherae lanceolatae, ca. 1.5 mm. longae, basi subsagittatae; filamenta ca. 0.5 mm. longa; ovula 6 vel 7.

Panama: Prov. Panama, from Torti to the Pilota del Toro, the mountain overlooking Torti Arriba, alt. 400--700 m., Aug. 27, 1977, J. P. Folsom, Gregario Alonzo de Monte 4998 (LL, holotype; MO, isotype), shrub of 4 m., 5 pale to deeper purple petal lobes with some darker streaking, stamens yellow.

A. atropurpurea is a taxon paired with A. pirreana Lundell, both distinguished at once by the unique maroon or purple recurved spreading petals which are lepidote on the dorsal surface. In both species the anthers are dehiscent longitudinally. A. atropurpurea is distinct from A. pirreana having larger fewer flowers on longer pedicels and smaller leaves which are lepidote at first on both surfaces.

ARDISIA PIRREANA Lundell, sp. nov. -- Frutex; ramuli graciles, furfuracei; folia parva, petiolata, petiolo lepidoto, 3--5 mm. longo; lamina membranacea, supra glabra, subtus lepidota, lanceolata, 5.5--10 cm. long, 2--3 cm. lata, apice acuminata, basi acuta; inflorescentia terminalis, paniculata, basi foliacea, tenuis, ad 7.5 cm. longa, lepidoto-furfuracea; pedicelli 3--5 mm. longi; flores parvi, corymbosi; sepala 5, ovata, 1--1.5 mm. longa, acuta vel acuminata, asymmetrica, punctata, dorso lepidoto-furfuracea; petala 5, ovato-elliptica,

ca. 1.6 mm. longa, basi coalita, apice apiculata, lepidota, nigropunctata; stamina 5; antherae ovatae, basi cordatae, 1.2--1.4 mm. longae, crassae, apice apiculatae; filamenta ca. 0.5 mm. longa; ovarium ovoideum, stylo 2 mm. longo; ovula 4--7.

Panama: Prov. Darien, Cerro Pirre, ridgetop near Rancho Plastico, alt. 1200 m., July 10--20, 1977, J. P. Folsom, R. Hartman and R. Dressler 4251 (LL, holotype), shrub of 3 m., petals 5, white, recurved, with maroon markings in midarea, fruits red.

This taxon has very small flowers in slender terminal panicles, with lepidote acute sepals 1--1.5 mm. long, recurved thick dorsally lepidote petals about 1.6 mm. long with maroon markings, and very small sessile thick ovate anthers about 1.2 mm. long rigidly apiculate and dehiscent longitudinally. The branchlets, undersurface of leaves, and the inflorescence are all lepidote-furfuraceous with rather small scales. The maroon markings and lepidote dorsal surface of the recurved petals are unusual.

ARDISIA SAPOANA Lundell, sp. nov. -- Frutex glaber; ramuli graciles; folia glabra, nigro-lineato-punctata, petiolata, petiolo anguste marginato, 6--15 mm. longo; lamina glabra, membranacea, integra vel subintegra, anguste elliptica vel oblanceolata, 5.5--12 cm. longa, 2.5--4 cm. lata, apice acuminata, basi attenuata, acuminata; inflorescentia glabra, terminalis, sessilis, paniculata, ca. 2.5 cm. longa; flores corymbosi; pedicelli graciles, ad 1.2 cm. longi, punctati; sepala 5, dense punctata, lanceolata, ca. 3 mm. longa, apice obtusa; corolla ca. 7.2 mm. longa, intus basi papillosa; petala 5, basi connata ca. 2 mm., asymmetrica, punctata, apice acuta; stamina 5, ca. 4 mm. longa, filamentis ca. 0.6 mm. longis, antheris lanceolatis, ca. 3.6 mm. longis apice biporatis dehiscentibus, dorso concoloribus parce punctatis; ovarium glabrum, stylo ca. 4.5 mm. longo; ovula 15.

Panama: Prov. Darien, NE slope of summit, Cerro Sapo, approach from Garachine, E slope, knife edge ridge before ascent to top, elev. 2800 ft., May 9, 1979, B. Hammel 7297 (LL, holotype), shrub 4 m., flowers pink.

The petals are connate at base about 2 mm., but the corolla tube is about 1 mm. long bearing the thick short filaments around the top. At the apex of the tube the base of the petals is glandular-papillose. This taxon is notable for its small sessile inflorescence with bractlets, sepals and petals drying conspicuously black-punctate.

ARDISIA SOLOMONII Lundell, sp. nov. -- Arbor parva; ramuli crassi, apice peradpresse furfuracei; folia pseudoverticillata, petiolata, petiolo anguste marginato, 6--13 mm. longo; lamina subcoriacea, supra glabra, subtus peradpresse lepidoto-furfuracea, anguste oblanceolata, 6--9.5 cm. longa, 1.3--2.5 cm. lata, basi attenuata, apice subabrupte acuminata;

inflorescentia subsessilis, terminalis, ad 7 cm. longa, paniculata, densiflora, furfuracea; flores capitellati, glabri vel subglabri; pedicelli crassiusculi, 1--2.5 mm. longi; sepala 5, late ovata, ca. 1.4 mm. longa, punctata, eroso-ciliolata, symmetrica, apice obtusa; petala 5, convoluta, basi connata, glabra, punctata; stamina subsessilis; antherae lanceolatae, ca. 1.7 mm. longae; ovarium glabrum; ovula 17--20.

Costa Rica: Prov. Puntarenas, Monteverde, elev. ca. 1300 m., cloud forest at edge of continental divide and on Pacific side of slope, Aug. 18, 1976, J. C. Solomon 5392 (LL, holotype), small tree, about 5 m.

The thick branchlets with pseudoverticillate leaves crowded at the apex and small dense terminal inflorescences with numerous small pedicillate flowers in short-stalked heads set A. Solomonii apart.

The pseudoverticillate leaves are suggestive of Conomorpha, and specimens with flowers at anthesis are needed to resolve the generic status of A. Solomonii.